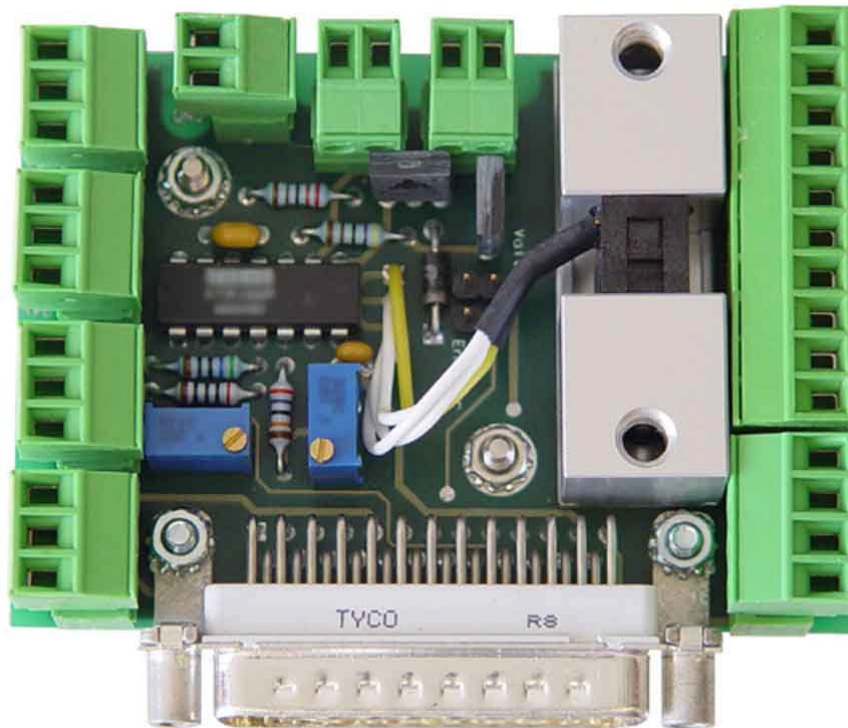


Operating Manual

Trigger Board

TIP002



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1 Safety Information

The design of the generator conforms to the current state of engineering and is safe to use.

The parts and the complete unit are subject to continual inspection by our quality assurance department.

The generator is intended exclusively for the ultrasonic welding of thermoplastic materials. Any other use is regarded as inconsistent with the intended purpose, and is undertaken at the user's own risk. The manufacturer is not liable for any resultant damage.

Before you are using this generator the first time you must read this instruction manual carefully. In case of lack of knowledge of the user, malfunction on the unit can result in damage. Always keep this instruction manual next to the unit.

Do not make any modifications which might endanger safety without permission of the manufacturer.

Work on the unit may only be performed by reliable staff.

2 Technical Data

The TIP002 is an Interface board with an integrated differential trigger for an ultrasonic welder. A 25 pin Sub D male connector connects the TIP002 with the Anaconda, Viper (XL) or Cobra (XL) ultrasonic generator from apsonic GmbH directly.

All inputs and outputs have a separate connector with its own 24 V DC supply.

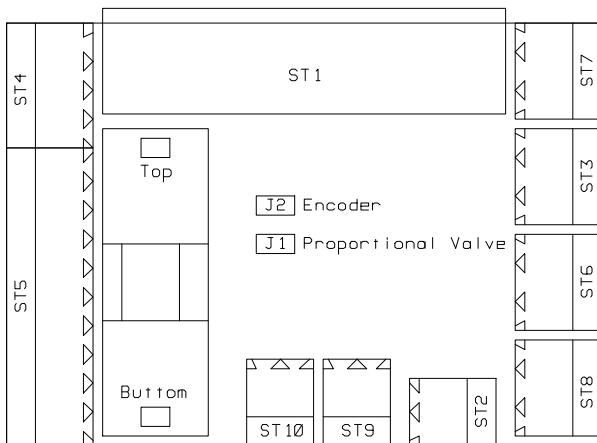
Other generator or PLC can be connected as well.

Pos	Function	Specs
1	Voltage :	22 – 26 V DC
2	Maximum Pressure :	13.78 bar (200 PSI)
3	Trigger Range :	0 – 6.89 bar (100 PSI)
4	Tolerance :	+ - 0.1 bar
5	Trigger Output :	4 – 20 mA 4mA = 0 bar / 20mA = 10 bar
6	Input Digital :	6
7	Input Encoder :	2 (A / B)
8	Inputs Analogue :	2
9	Output Digital :	5
10	Output Internal :	Valve for speed reduction
11	Output Analogue :	2
12	Pneumatic connections :	M5 thread for any pneumatic fittings
13	Temperature	-5°C ~ 45°C / Stock -20°C ~ 60°C
14	Design & Production	Switzerland

3 Pressure Table

[bar]	[PSI]	[mA]	[V] RL=500ohm
0.0	0.00	4.0	2.0
0.5	7.25	4.8	2.4
1.0	14.50	5.6	2.8
1.5	21.76	6.4	3.2
2.0	29.01	7.2	3.6
2.5	36.26	8.0	4.0
3.0	43.51	8.8	4.4
3.5	50.76	9.6	4.8
4.0	58.02	10.4	5.2
4.5	65.27	11.2	5.6
5.0	72.52	12.0	6.0
5.5	79.77	12.8	6.4
6.0	87.02	13.6	6.8
6.5	94.27	14.4	7.2

4 Position Connections



Connection	Description
ST1	Generator
ST2	Output Valve Press
ST3	Input Safety Switch
ST4	Input DTM A/B
ST5	Input & Output various
ST6	Input US Stop digital
ST7	Input Home position
ST8	Input Speed reduction Valve
ST9	Output Speed reduction Valve
ST10	Supply 24VDC

5 Connections

5.1 Connection Generator

ST2

25-pin SUB-D male

Pin	Signal	Connector	Pin	Sign
1	Output 1 Valve	ST2	1	V1
2	Output Analogue 1 / 0-10V Proportional Valve	ST5	10	10
3	Input 7 Reset	ST5	9	9
4	Output 2 Error Frequency	ST5	8	8
5	Input 4 Safety Switch	ST3	1	SS
6	Output 3 Error Overload	ST5	7	7
7	Input 8 Proportional Valve active = J1 VAL	ST5	6	6
8	Output 4 Error Message general	ST5	5	5
9	Input 15 US – Stop digital	ST6	1	DS
10	Output 5 Ready	ST5	4	4
11	Input 9 DTM active = J2 EN	ST5	3	3
12	Input analogue 1 / Trigger 4 – 20 mA	Pneumatic Connector M5		
13	Input 5 Home Position	ST7	1	HP
14	Output Analogue 2	ST5	1	1
15	Input Encoder A	ST4	2	A
16	Input Encoder B	ST4	3	B
17	Input Analogue 3	ST5	2	2
18	NC			
19	24 V	ST3-3,ST6-3,ST7-3,ST8-3		24V
20	24 V	ST4-4, ST10-2,ST9-1		24V
21	GND 24	ST3-2,ST6-2,ST7-2,ST8-2		GND
22	GND 24	ST2-2,ST4-1,ST10-1		GND
23	NC			
24	NC			
25	NC			

Input Speed Reduction Valve	ST8	1	SR
Output Speed Reduction Valve	ST9	2	V2

Only with an Anaconda Generator all signal will be supported.

With Viper (XL) or Cobra (XL) you need to check their manual to see the supported signals.

Pin 1

The Output 1 **VALVE** is supplying 24V if active. The Output 1 **VALVE** is controlling the valve of a pneumatic press.

Pin 2

The Output Analogue 1 **PROPORTIONAL VALVE** is supplying 0-10V. The Output **PROPORTIONAL VENTIL** will control the Output Pressure of a connected Proportional Valve.
The output can be scaled in the SYSTEM INIT Menu.

Pin 3

The Input 7 **RESET** must have 24V to activate. The welding cycle will be interrupted and an ERROR will be activated.

Pin 5

The Input 4 **SAFETY SWITCH** must have 24V to activate. If the Input 4 **SAFETY SWITCH** is activated you can release the dual palm buttons. The TRIGGER will be started.

Pin 7

The Input 8 **PROPORTIONAL VALVE ACTIV** must have 24V to activate. The Input 8 **PROPORTIONAL VENTIL ACTIV** must be activated if you have a proportional valve in your system. If you are using the Trigger Board TIP002 in your system then you can set Jumper J1 **VAL** on the board to activate.

The scaling must be done in the SYSTEM INIT Menu.

Suggested Proportional Valve : SMC
 ITV 2050 – 31F3N – Q / 0 – 9 bar

Pin 8

The Output 4 **ERROR GENERAL** is supplying 24V if active. In case of an ERROR the output will be activated. Press CLR, activate Input 7 RESET or the next welding cycle will reset the ERROR.

Pin 9

The 15 Input **US-STOP** must have 24 V to activate. The Input 15 US-STOP is in a OR Connection with US-STOP on X3.

The **US-STOP** is only active if mode is US- STOP. Use switch or PNP Sensor. For switch off horn – knife contact you need to use US –STOP on X3

Pin 10

The Output 5 **READY** is supplying 24V if activated. The Output 5 **READY** is active if the unit is ready for the next welding cycle.

Pin 11

The Input 9 **DTM ACTIVE** must have 24 V to activate. This input must be activated to access the Travel Modes. In the display the last line on the right side will show the distance.

A digital linear Encoder with A7B Channel must be in your system. If you are using the Trigger Board TIP002 in your system then you can set Jumper J2 **EN** on the board to activate.

The scaling must be done in the SYSTEM INIT Menu.

Suggested Encoder : Baumer Electric MLFK 10G2124/N100

Pin 12

The Input **TRIGGER ANALOGUE 1** is only active if set to **TRIGGER ANALOGUE = PRESSURE** in the SYSTEM INIT Menu. Otherwise the Trigger is by Timer

Input **TRIGGER ANALOGUE 1** 4mA = 0bar, 20mA=10bar, Impedance = 500ohm

Pin 13

The Input 5 **HOME POSITION** must have 24V to activate. Your system must have a Home Position Sensor. If there is no Home Position Sensor you need to set **HOME POSITION=OFF** in the SYSTEM INIT Menu.

Pin 15

The Input Encoder **A** must have 24V to be activated. A & B must have 90 degree phase shift.

Pin 16

The Input Encoder **B** must have 24V to be activated.

Pin 19 & 20

24 V DC

Pin 21 & 22

GND 24 V

5.2 Connection Valve Press ST2 2 pin 3.81

Pin	Marking PCB	Signal
1	V1	Output 1 Valve Press
2	GND	GND

5.3 Connection Safety Switch ST3 3 pin 3.81

Pin	Marking PCB	Signal
1	SS	Input Safety Switch
2	GND	GND
3	24V	24

5.4 Connection Encoder ST4 4 pin 3.81

Pin	Marking PCB	Signal
1	1	GND
2	2	A
3	3	B
4	4	24V

5.5 Connection Input / Output ST5 10 pin 3.81

Pin	Marking PCB	Signal
1	1	Output Analogue 2
2	2	Input Analogue 3
3	3	Input 9 DTM active = J1 EN
4	4	Output 5 Ready
5	5	Output 4 Error general
6	6	Input 8 Proportional Valve active = J2 VAL
7	7	Output 3 Error Overload
8	8	Output 2 Error Frequency
9	9	Input 7 Reset
10	10	Output Analogue 1 / 0-10V Proportional Valve

5.6 Connection US-Stop ST6 3 pin 3.81

Pin	Marking PCB	Signal
1	DS	Input US Stop
2	GND	GND
3	24V	24V

5.7 Connection Home Position ST7 3 pin 3.81

Pin	Marking PCB	Signal
1	HP	Input Home position
2	GND	GND
3	24V	24V

5.8 Connection Speed Reduction ST8 3 pin 3.81

Pin	Marking PCB	Signal
1	SR	Input Speed reduction
2	GND	GND
3	24V	24V

5.9 Connection Valve Speed Reduction ST9 3 pin 3.81

Pin	Marking PCB	Signal
1	24V	24V
2	V2	Output Speed reduction Valve

5.10 Connection Supply 24V ST10 3 pin 3.81

Pin	Marking PCB	Signal
1	GND	GND
2	24V	24V

6 Dimensions

